FY 2006
TRAINING CATALOG
AND
RESOURCE GUIDE

FEMP Workshops for:

- Federal Facility Energy and Water Managers
- Associated Contracting Personnel

Important Energy/Water Management Conferences

U.S. Department of Energy

Energy Efficiency and Renewable Energy

Bringing you a prosperous future where energy is clean, abundant, reliable, and affordable.

MISSION STATEMENT

FEMP increases energy security and reduces the cost and environmental impact of the federal government by advancing energy efficiency and water conservation, promoting the use of distributed and renewable energy, and improving utility management decisions at federal sites.

U.S. Department of Energy
Energy Efficiency and Renewable Energy
Bringing you a prosperous future where energy is clean, abundant, reliable, and affordable

For more information contact:
EERE Information Center
1-877-EERE-INF (1-877-337-3463)
http://www.eere.energy.gov

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WELCOME TO FEMP TRAINING FOR FISCAL YEAR 2006!

Since the enactment of the Energy Policy Act of 1992, FEMP has been providing training in facility energy and water management for federal agencies.

The FY 2006 Training Catalog and Resource Guide describes the FEMP courses and provides workshop schedules and contact information. Classroom workshops are rotated around the country; for those who are not able to travel, there are: the Energy Management Telecourse (and video tapes), which summarizes six FEMP courses via satellite broadcast; the FEMP Lights self-paced Web course; and the Distributed Generation and Combined Heat and Power Web course.

Are you wondering what training you should take first? Go to the "Users Guide to the FEMP Training Program" on page 4, and the sections on the statutory basis for FEMP training and areas of required expertise on pages 44-45. Options to address the possibility of serious natural gas shortages this winter will be included in the Evolving Energy Markets Workshop and the Utility Energy Services Contracting Projects Workshops.

Courses are continuously updated for technology and policy developments.

Most FEMP workshops are free for federal attendees. Personnel from state and local governments and from the private sector are welcome for most workshops on a space available basis.

Schedule changes may occur throughout the year as additional workshops are added, and occasionally workshops may be cancelled due to low advanced registrations. Please check the following address throughout the year for the most current workshop information:

http://www.eere.energy.gov/femp/services/training_schedule.cfm

Please see the "Other Technical Resources" section, which directs you to useful Web sites and other sources of energy management assistance.

You'll also find information on FEMP contacts, publications, and services.

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*Executive Order 13123- "Greening the Government through Efficient Energy Management"

RECENT POLICY AND GUIDANCE

2005 POLICY ACTIONS

Presidential Directive on Energy and Conservation by federal agencies calls on federal agencies to take immediate steps to conserve energy and fuels to reduce overall demand and allow extra supplies to be directed towards the hurricane relief effort.
http://www.eere.energy.gov/femp/about/legislation.cfm

Energy Policy Act of 2005 provides for: increased energy savings goals for federal agencies; reauthorizing ESPC through September 2016; requiring electric metering by 2002; and other measures.

SUMMARY OF EXECUTIVE ORDER 13123 – IMPLEMENTATION AND RELATED TRAINING GUIDELINES

Official guidelines for complying with E.O. 13123 have been developed by the Federal Interagency Task Force administered by FEMP. They are available at: http://www.eere.energy.gov/femp/about/legislation.cfm

Requirements of E.O. 13123

On June 3, 1999, former President Clinton signed Executive Order 13123, entitled "Greening the Government Through Efficient Energy Management". The Order states that "agencies shall ensure that all appropriate personnel receive training for implementing E.O. 13123.
(1) DOE, DoD, and GSA shall provide relevant training or training materials for those programs that they make available to all federal agencies relating to the energy management strategies contained in this order" [Sec. 406(d) Training and Education].

The entire text of E.O. 13123 can be found on the FEMP Web site at: http://www.eere.energy.gov/femp/about/legislation.cfm
Facility management and associated contracting personnel are specifically affected by the following:

The order requires that by 2010, federal agencies achieve:

- 35% greater energy efficiency in buildings relative to 1985 levels; and
- 30% cut in greenhouse gas emissions from building-related energy use relative to 1990.

The order directs agencies to maximize the use of:

- Energy Savings Performance Contracts and Utility Contracts, in which private companies make energy improvements at their own expense on federal facilities and receive a portion of the resulting savings;
- Life-cycle cost analysis in order for agencies to see the long-term savings from energy investments;
- ENERGY STAR® and other energy efficient products, everything from light bulbs to boilers; and
- Renewable energy technologies and sources (solar, wind, geothermal, and biomass).

In pursuit of these goals, consider the following:

(1) All FEMP courses have been updated to address the requirements of E.O. 13123.

(2) Each agency has a headquarters representative to the Federal Interagency Energy Task Force who is responsible for providing guidance to agency implementation teams. Be sure your organization has a pipeline to that guidance.

USERS GUIDE TO THE FEMP TRAINING PROGRAM

What's FEMP Training? Who's it for?

FEMP's training program is divided into two parts:

(1) Training courses teach students how to achieve federal energy-efficiency and water conservation at federal facilities. Most participants are on-site engineers and program managers, but attendance by federal financial and procurement specialists is also important. Most courses allow attendance by representatives from utilities, state and local governments, and private companies. FEMP continuously updates and modifies these courses to improve quality. Currently, Learning Units are available for the "Design Strategies for Low-Energy, Sustainable, Secure Buildings" workshop.

(2) FEMP-Sponsored Symposia at national energy and water management conferences are also available (see page 11).

Is There a Preferred Sequence for Taking FEMP Courses?

Sequencing of FEMP courses depends mostly on whether you are a technical employee or a contracting employee, and of course, your energy or water improvement objectives.

Recommended Steps for Technical Specialists

Step 1: Overview Course: FEMP's FY 2006 "Energy Management Telecourse" provides an overview of life-cycle costing; energy efficient procurement requirements, operations and maintenance; water resource management; Energy Savings Performance Contracting, and Utility Energy Services Contracting. (Prior to the March 2006 broadcast dates, you may order free videotapes of the 2005 sessions. Please email your order to: deisemann@mcneiltech.com).

Step 2: Energy Efficient Products Information: FEMP's new course, Energy Efficient Procurement Requirements, provides guidance for selecting energy efficient products in support of legislation, executive orders, the Federal Acquisition Regulation, and ENERGY STAR®. This course is also available via satellite broadcast and videotape.

Step 3: Updates on Evolving Energy Markets Evolving Energy Markets Course: learn how to choose the best energy service and project assistance options in the evolving retail utility industry, as well as opportunities for better managing energy use, and procuring electric and gas utility services and renewable power.

Step 4: Cost-Savings Optimization Training
Life-Cycle Costing Course: all federal energy and water improvements must be analyzed for life-cycle cost effectiveness. Get the greatest energy and water savings by using the new Windows-based Building Life-Cycle Costing (BLCC 5) software.

Step 5: O&M Opportunities Training
Operations and Maintenance Management Course: find out how to gain better control of your day-to-day facility management and utility costs and implement specific high payback procedures and energy conservation measures. You will need minimal additional resources to reap large near-term savings from this course.

Step 6: Integrated Design Training
Design Strategies for Low-Energy, Sustainable, Secure Buildings Course: up-front planning on how to effectively integrate passive solar design, energy conservation and renewable energy options into building design.

Step 7: Energy Simulation Tool Training
FEDS 5.0 Workshop: incorporates software for analyzing conservation options in individual or multiple buildings at a single site.

Step 8: Specific Technology Training
FEMP Lights Course: targets a major conservation opportunity for federal facility management.

Implementing Renewable Energy Projects Workshop has optional modules for your objectives: passive and active solar; remote power; and backup through photovoltaic and wind systems.

High Performance, Low Energy Laboratory Design and Laboratories for the 21st Century provide a forum for lab building design and operation that incorporates renewable energy technologies and energy efficiency.

Water Resource Management Course: how to measure and manage your sites' water usage to obtain water, energy, cost, and quality-of-life benefits.

Introduction to Distributed Generation and Combined Heat and Power Course: will help you understand distributed energy resources (DER) which involves placing energy generating systems near, or at, the point of use, improving electric reliability and power quality for customer. DER complements the existing transmission and distribution system and enables the use of waste heat for productive purposes in combined heat and power applications.

Step 9: Project Financing/Contracting Training
The Energy Savings Performance Contracting Telecourse and Super ESPC Delivery Order Workshops focus on obtaining private sector funding to accomplish energy improvements. FEMP recommends that procurement and technical specialists attend the Super ESPC Workshop as a project team. Legal, management, and other specialists on your team are also welcome.

The Utility Energy Services Contracting (UESC) Projects Workshop explores all the information you need to know about implementing energy conservation projects with utilities. FEMP recommends that procurement and technical specialists attend the UESC Workshop as a project team. Legal, management, and other specialists on your team are also welcome.

(continued on next page)

Recommended Steps for Contracting Specialists

Step 1: Energy Efficient Products Information
Energy Efficient Procurement Requirements Course: provides guidance for selecting energy efficient products in support of legislation, executive orders, the Federal Acquisition Regulation, and ENERGY STAR®. This course is also available via satellite broadcast and videotape.

Step 2: Updates on Evolving Energy Markets
Evolving Energy Markets Course: learn how to choose the best energy service and project assistance options in the evolving retail utility industry, as well as opportunities for better managing energy use, and procuring electric and gas utility services and renewable power.

Step 3: Project Financing Training
The Energy Savings Performance Contracting telecourse and Super ESPC Delivery Order workshop focus on obtaining private sector funding to accomplish energy improvements. FEMP recommends that procurement and technical specialists attend the Super ESPC Workshop as a project team. Legal, management, and other specialists on your team are also welcome.

The Utility Energy Services Contracting (UESC) Projects Workshop explores all the information you need to know about implementing energy conservation projects with utilities. FEMP recommends that procurement and technical specialists attend the UESC Workshop as a project team. Legal, management and other specialists on your team are also welcome.

What is the Statutory Basis for FEMP Training?

For detailed information on how FEMP training relates to the Executive Order 13123, the Energy Policy Act of 1992 “Trained Energy Manager”, and other requirements for agencies, please refer to the Appendix section of this catalog.

CHRONOLOGY OF FEMP FY 2006 TRAINING

Classroom workshops are scheduled upon request for Energy Efficient Procurement Requirements. Please check the FEMP Web site for frequent updates: http://www.eere.energy.gov/femp/services/training_schedule.cfm

DATE	EVENT	LOCATION
2005		
October 11-12	Implementing Renewable Energy Projects	Washington, DC
October 13-14	Implementing Renewable Energy Projects	Washington, DC
October 17	High Performance, Low Energy Laboratory Design Workshop	Portland, OR
October 17	Labs 21 Advanced Course: Laboratory Ventilation Design	Portland, OR
October 18-20	Laboratories for the 21st Century Annual Conference	Portland, OR
November 15	Lighting for Health and Human Performance	Washington, DC
November 16	High Performance, Low Energy Laboratory Design Workshop	Denver, CO
December 15	Building Design Strategies Course Supplement/Conference	Washington, DC
2006		
TBD	Introduction to Distributed Energy	Web cast
TBD	Hands-On Distributed Energy Resourced (DER) Training	TBD
January 24-25	Introduction to ESPC	Seattle, WA
February 7	Energy Management Telecourse: Part 1 Utility Energy Services Contracting; Energy Savings Performance Contracting	(via Satellite & Streaming Video)
February 14	Energy Management Telecourse: Part 2 Energy Efficient Procurement Requirements; Life-Cycle Costing	(via Satellite & Streaming Video)
February 15-16	Utility Energy Services Contracting	Los Angeles, CA
February 21	Energy Management Telecourse: Part 3 Water Resource Management; Operations and Maintenance Management	(via Satellite & Streaming Video)
Spring	Design Strategies for Low-Energy, Sustainable, Secure Buildings	TBD
Spring	Implementing Renewable Energy Projects	TBD
March 7-8	Water Resource Management	San Antonio, TX
March 28-30	Advanced ESPC/Financing	Charleston, SC
April 11	Introduction to Facility Energy Decision System (FEDS)	Atlanta, GA
April 12-13	Advanced Facility Energy Decision System (FEDS)	Atlanta, GA
May 16-17	Utility Energy Services Contracting	Detroit, MI
Summer	Implementing Renewable Energy Projects	TBD
June 7	Evolving Energy Markets	Washington, DC
June 13-14	Introduction to ESPC	Annapolis, MD
June 27-28	Operations and Maintenance Management	San Diego, CA
October 16	High Performance, Low Energy Laboratory Design Workshop	San Antonio, TX
October 17-19	Laboratories for the 21st Century Annual Conference	San Antonio, TX

FEMP FY 2006 DISTANCE LEARNING TRAINING SCHEDULE

(Please refer to next page for classroom workshops.)

Self-Paced Web-Based Courses

- **FEMP Lights**
  Fall 2005
  Spring 2006

  Contact: Cynthia Austin, 916-962-7001;
  austin@h-m-g.com

  Or register online at:
  http://fempcentral.com/workshops/registration.ws

Telecourses 2006

- **February 7: Energy Management Telecourse • Part 1**
  Utility Energy Services Contracts;
  Energy Savings Performance Contracting

- **February 14: Energy Management Telecourse • Part 2**
  Energy Efficient Procurement Requirements;
  Life-Cycle Costing –Basic

- **February 21: Energy Management Telecourse • Part 3**
  Water Resource Management;
  Operations and Maintenance Management

  Contact: For details on how to participate in the telecourse, visit http://www.energyworkshops.org/femp, or contact Heather Schoonmaker, via email, trainingsolutions@tds.net or phone at 865-777-9869.

  Register for the telecourse online at http://www.energyworkshops.org/femp which connects to the FEMP Central Registration at http://fempcentral.com/workshops/registration.ws

The Department of the Navy partnered with NORESCO to construct a $12 million wind turbine project at Guantanamo Bay, Cuba using an energy savings performance contract.

FEMP FY 2006 CLASSROOM TRAINING SCHEDULE

(Please see previous page for distance learning training schedule)

Changes occur throughout the year – please check http://www.eere.energy.gov/femp/services/training_schedule.cfm for frequent updates.

Workshop	Date/Location	information
Introduction to Distributed Energy (Webcast)	TBD	Marion Rawson: 202-479-2748 mrawson@energeticsinc.com
Hands-On Distributed Energy Resources (DER) Training	TBD	Connie Brooks: 505-844-4383 cjbrook@sandia.gov
Energy Efficient Procurement Requirements	February 14, 2006	Scheduled upon request dlmauritz@lbl.gov
Lighting for Health, Human Performance, Energy and Environment	November 15, 2005 Washington, DC Spring 2006 / Fall 2006 TBD	Heschong Mahone Group: 916-962-7001 teach@h-m-g.com For additional information go to http://www.femplights.com
Design Strategies for Low-Energy, Sustainable, Secure Buildings	TBD	Richard Paradis: 202-628-7400, Ext. 201
Building Design Strategies Supplement	Dec 15, 2005 Washington, DC	RParadis@SBICouncil.org
Implementing Renewable Energy Projects	Spring 2006 Fall 2006	Robi Robichaud 303-384-7486 robi-robichaud@nrel.gov
High Performance, Low Energy Laboratory Design	Nov 16, 2005 Denver, CO Oct 16, 2006 San Antonio, TX	Labs 21 Conference Registration: 781-674-7374 http://www.labs21century.gov/
Laboratories for the 21st Century Conference	Oct 17-19, 2006 SanAntonio, TX	Labs 21 Conference Registration: 781-674-7374 http://www.labs21century.gov/
Advanced ESPC/Financing	March 28-30, 2006 Charleston, SC	Danette Delmastro: 202-586-7632 danette.delmastro@ee.doe.gov
Water Resource Management	March 7-8, 2006 San Antonio, TX	Cecilia Mendoza or Shannan Butler 509-372-4368 femp.train@pnl.gov
Introduction to Facility Energy Decision System (FEDS)	April 11, 2006 Atlanta, GA	Cecilia Mendoza or Shannan Butler 509-372-4368 femp.train@pnl.gov
Advanced Facility Energy Decision System (FEDS)	April 12-13, 2006 Atlanta, GA	Cecilia Mendoza or Shannan Butler 509-372-4368 femp.train@pnl.gov
Operations & Maintenance Management	June 27-28, 2006 San Diego, CA	Cecilia Mendoza or Shannan Butler 509-372-4368 femp.train@pnl.gov
Introduction to ESPC	Jan 24-25, 2006 Seattlle, WA June 13 -14, 2006 Annapolis, MD	Danette Delmastro: 202-586-7632 danette.delmastro@ee.doe.gov
UESC Projects	Feb 15-16, 2006 Los Angeles, CA May 16-17, 2006 Detroit, MI	Brad Gustafson@ee.doe.gov
Evolving Energy Markets	June 7, 2006 Washington, DC	david.mcandrew@ee.doe.gov

SUMMARY SCHEDULES

MULTIPLE COURSE SESSIONS

FEMP often holds classroom workshops in conjunction with other workshops or conferences to allow students to stretch their travel dollars. Please refer to the respective course description pages for registration information.
(Please see the following pages for a complete listing of all FEMP courses.)

- October 17-20, 2005 in Portland, OR
  - October 17 — Labs21 Workshop
  - October 18-20 — Laboratories for the 21st Century Conference
- April 11-13, 2006 in San Diego, CA
  - April 11 — Introduction to Facility Energy Decision System (FEDS)
  - April 12-13 — Advanced FEDS
- August 6-9 2006, in Chicago, IL — Energy 2006
- October 16-19, 2006 in San Antonio, TX
  - October 16 — Labs21 Workshop
  - October 17-19 — Laboratories for the 21st Century Conference

FEMP-SPONSORED SYMPOSIA AT NATIONAL CONFERENCES

These events offer excellent opportunities for the federal energy and water management community to meet face-to-face and exchange information. The community includes not only representatives of federal agencies, but also energy managers from state and local governments, private-sector suppliers of equipment and services, and representatives from utilities and non-profit institutions. FEMP draws upon this community to organize and conduct seminars on timely energy and water management topics.

CONFERENCES WITH FEMP SYMPOSIA

DATES	CONFERENCE	LOCATION
DECEMBER 15, 2005	SBIC 2005 FORUM	Washington, DC
MARCH 29-30, 2006	GLOBALCON 2006	Philadelphia, PA
JUNE 7-8, 2006	WEST COAST EMC 2006	Seattle, WA
SEPTEMBER 13-14, 2006	WEEC 2006	Washington, DC
OCTOBER 17-19, 2006	LABS 21 ANNUAL CONFERENCE	San Antonio, TX
AUGUST 6-9, 2006	ENERGY 2006	Chicago, IL

Definition of conference acronyms:

SBIC	Sustainable Building Industries Council
Labs 21	Laboratories for the 21st Century Conference, jointly sponsored by DOE and EPA
WEEC	World Energy Engineering Congress (sponsored by the Association of Energy Engineers)
GLOBALCON	Global Conservation (sponsored by the Association of Energy Engineers)
Energy 2006	Sponsored by FEMP; co-sponsored by GSA and US Department of Defense
West Coast EMC	West Coast Energy Management Congress (sponsored by the Association of Energy Engineers)

OTHER IMPORTANT CONFERENCES

- **NATIONAL ASSOCIATION OF ENERGY SERVICE COMPANIES 22ND ANNUAL CONFERENCE**
  November 16-18, 2005 – Las Vegas, NV
  Information: Phone 202-822-0950, or go to http://www.naesco.org

- **ASHRAE INTERNATIONAL AHR EXPO**
  January 23-25, 2006 – Chicago, IL
  Information: Phone 301-694-5243 or 800-448-1883, or go to http://www.ahrexpo.com

- **NATIONAL FACILITIES MANAGEMENT AND TECHNOLOGY CONFERENCE/EXPOSITION**
  March 7-9 , 2006 – Baltimore, MD
  Information: go to http://www.nfmt.com

- **NATIONAL SOLAR CONFERENCE 2006**
  July 8 - 13, 2006 – Denver, CO
  Information: go to http://www.ases.org

- **AMERICAN COUNCIL FOR AN ENERGY-EFFICIENT ECONOMY (ACEEE) - 2006 SUMMER STUDY ON ENERGY EFFICIENCY**
  Aug 13-18, 2006 – Pacific Grove, CA
  Information: go to http://www.aceee.org

SELF-INSTRUCTION – VIDEO AND WEB TRAINING RESOURCES

FEMP Telecourse Online Self Study Tutorial

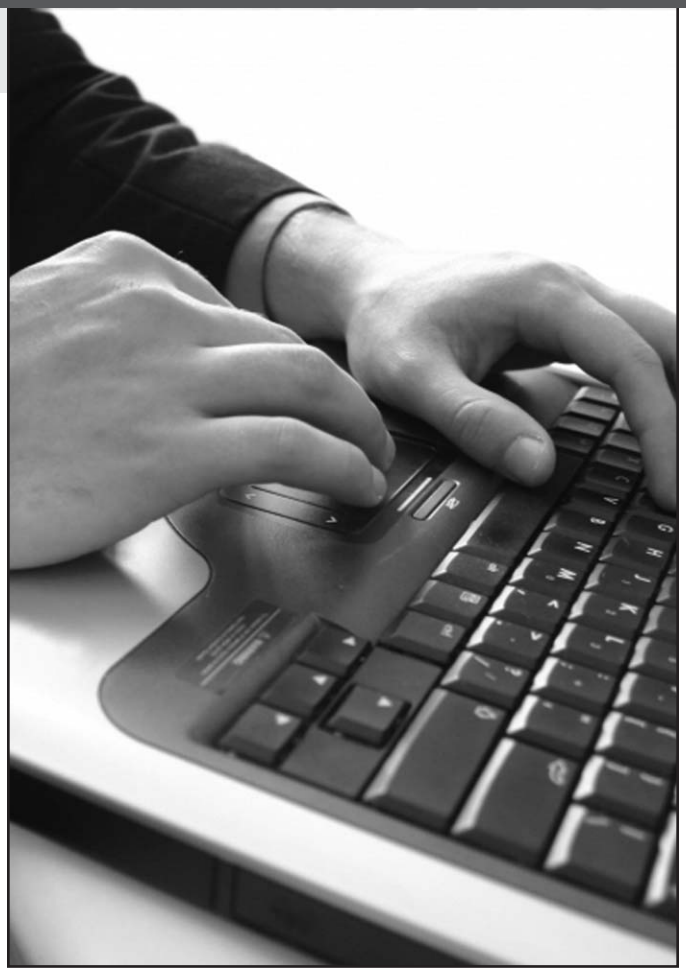
For each of FEMP's February 2006 telecourse modules (listed below), archived streaming videos, course slides and pre- and post-course information, including links to valuable reference materials on FEMP's Web site, can be found at:
http://www.energyworkshops.org/femp

FY 2006 Energy Management Telecourse

- Part 1: Utility Energy Services Contracting; Energy Savings Performance Contracting
- Part 2: Energy Efficient Procurement Requirements; Life-Cycle Costing—Basic
- Part 3: Water Resource Management; Operations and Maintenance Management

FY 2006 Web material and VHS tapes will become available during the Spring of FY 2006.

Please email your order for the VHS tapes to:
deisemann@mcneiltech.com,
including shipping information.



OTHER TECHNICAL RESOURCES

High efficiency lighting and daylighting save energy costs during the day and provide an open, comfortable work environment at the East Campus Complex of the Oak Ridge National Laboratory, Oak Ridge, Tennessee.

LEED™ Rating System

The LEED (Leadership in Energy and Environmental Design) Green Building Rating System (™) is a voluntary, consensus-based national standard for developing high performance, sustainable buildings. For information, please access http://www.usgbc.org/leed/leed_main.asp

Building Commissioning

Building Commissioning is a systematic process of ensuring that a building performs in accordance with the design intent, contract documents and the owner's operational needs. To learn about the Department of Energy's Building Technologies Program's building commissioning activities, please access http://www.eere.energy.gov/buildings/info/operate/buildingcommissioning.html For information on related training and conferences sponsored by Portland Energy Conservation, Inc.(PECI), please access http://peci.org/

Software Tools Directory

To find information on over 200 energy-related software tools for buildings that emphasize the use of renewable energy and achieving energy efficiency and sustainability in buildings, go to the Tools Directory of DOE's Building Technologies Program at: http://www.eere.energy.gov/buildings/tools_directory/

ENERGY STAR® Buildings Program

Access **http://www.energystar.gov** to learn about the ENERGY STAR® Benchmarking Tool, how to qualify a building for the ENERGY STAR® label, and ENERGY STAR® labeled federal buildings.

Distributed Energy Resources/Combined Heating and Power

The Department of Energy's distributed Energy Program maintains a Web site to provide access to DER-related programs, at http://www.eere.energy.gov/de/
For information relevant to FEMP's DER and CHP activities, please access http://www.eere.energy.gov/femp/technologies/derchp.cfm

Industrial Energy Systems Workshops

DOE's Industrial Technologies Program offers training sessions to help energy managers identify opportunities to reduce energy use and operating costs in industrial applications. Courses are offered throughout the year, are 1/2 to 2 days in length, and cover the following subject areas:

- Fan System Performance Assessment
- Motor Systems Management
- Optimization of Process Heating
- Fundamentals of Compressed Air
- Advanced Management of Compressed Air
- Adjustable Speed Drive Application
- Pump System Assessment
- Steam System Assessment

The courses are intended for private sector participants, but are often open for limited numbers of federal participants. Additional information on these courses may be found at: http://www.eere.energy.gov/industry/bestpractices/training.html

Group training on industrial applications for federal industrial customers may be available through FEMP's Industrial Facilities Program. For more information on course offerings through FEMP, contact Michaela Martin at martinma@ornl.gov or 865-574-8688.

Alternative Fuel Vehicle Training

The National Alternative Fuels Training Consortium strives to improve air quality and decrease the dependence on foreign oil by promoting, supporting, and expanding the use of alternative fuel vehicles. They develop and deliver standard, competency-based training for automotive trainers, technicians, and others in the alternative fuel vehicle field, and educate the consumer about alternative fuel vehicles.

This consortium currently operates a network of National Training Centers (NTCs) in 14 states. More than 2,000 technicians have been trained from over 50 industry, academic, and governmental organizations. The US Postal Service, the US Air Force, Clean Cities Programs, and private fleets are users of training materials from the consortium. National Training Centers' contact information and curricula are available at:
http://naftp.nrcce.wvu.edu/

Cool $ense Workshop

Agencies with an interest in building energy efficiency should consider organizing a workshop to promote integrated chiller retrofits. These retrofits can save money and energy and increase the asset value of your area's buildings. A workshop planning guide has been put together to help you with logistics, programming and marketing strategies. Find this guide along with other information at the Cool $ense Web site: http://ateam.lbl.gov/coolsense/

In FY 2004, a project to replace an outdated energy management system at the John J. Duncan Federal Building allowed GSA to reduce energy use and operating costs while creating a healthier work environment for building occupants.

SUPER ESPC DELIVERY ORDER WORKSHOPS

OPEN ONLY TO GOVERNMENT PERSONNEL

Capsule Description

Learn how to implement your energy conservation projects through the streamlined Super Energy Savings Performance Contracting (Super ESPC) process. This procurement process allows energy service companies to assume the capital costs of installing energy and water conservation equipment and renewable energy systems at federal sites. Agencies are shown how to issue delivery orders against regional or technology-specific indefinite delivery/indefinite quantity (IDIQ) contracts.

Course Length

Each course - 2-3 days

Fees

None

Course Contents

Two different versions of the Super ESPC course will be offered in FY 2006:

Introduction to ESPC - Intended for an audience who have little or no knowledge of Super ESPCs and may be considering doing a delivery order.

Advanced ESPC/Financing - Intended for a specific audience who want to gain an in-depth understanding of the Super ESPC process, with a special emphasis on financing and measurement and verification, and are currently developing a Super ESPC delivery order.

Who Should Attend

Energy managers and facility, technical, and procurement personnel. Due to discussion of procurement-sensitive information, ***this workshop is open only to government personnel***.

Benefits to You

Allows agencies to partner with private-sector energy service companies in order to take advantage of a solution for saving thousands of dollars in capital costs while reducing long-term energy and water bills. Take advantage of the lessons learned by other federal agencies in implementing and financing energy and water efficiency projects.

Instructors

Regional experts from the U.S. Department of Energy, Golden Field Office, and DOE National Laboratories.

Contact

For more information about the workshop, contact Danette Delmastro at danette.delmastro@ee.doe.gov or 202-586-7632. You can also register online at http://fempcentral.com/workshops/registration.ws For agency-customized workshops, contact your DOE Regional Office (see listing on page 43).

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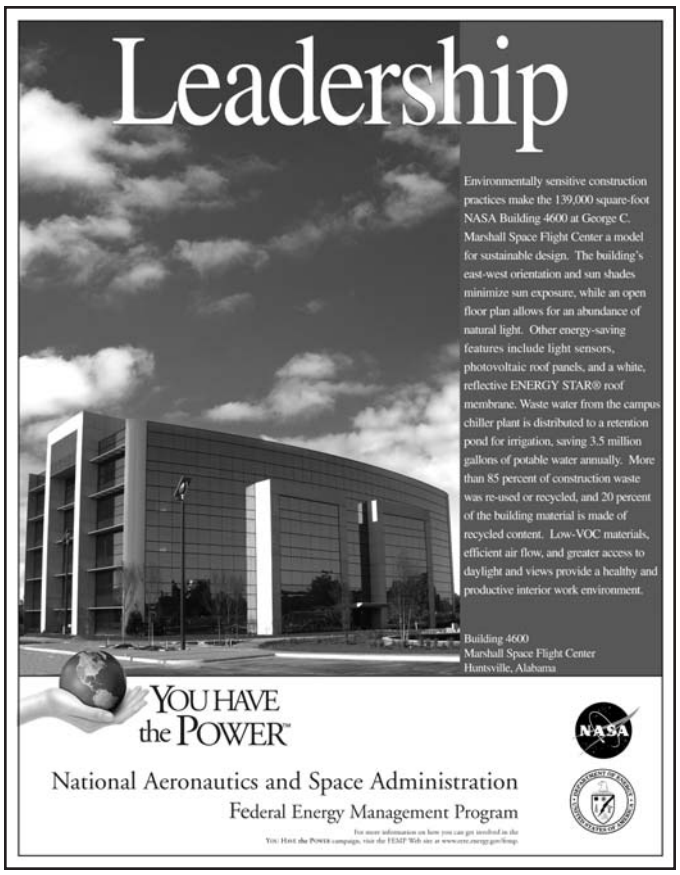
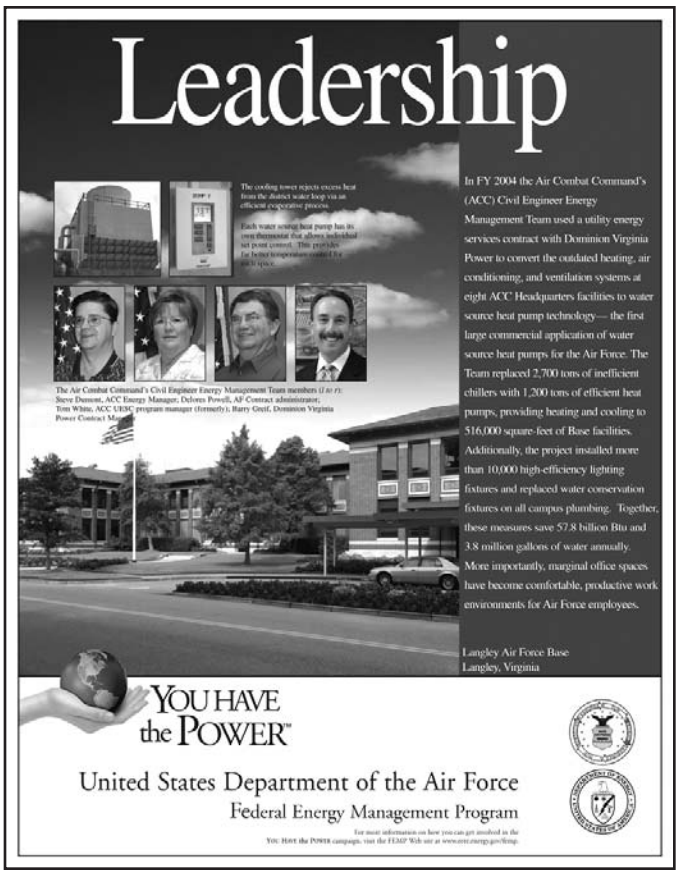
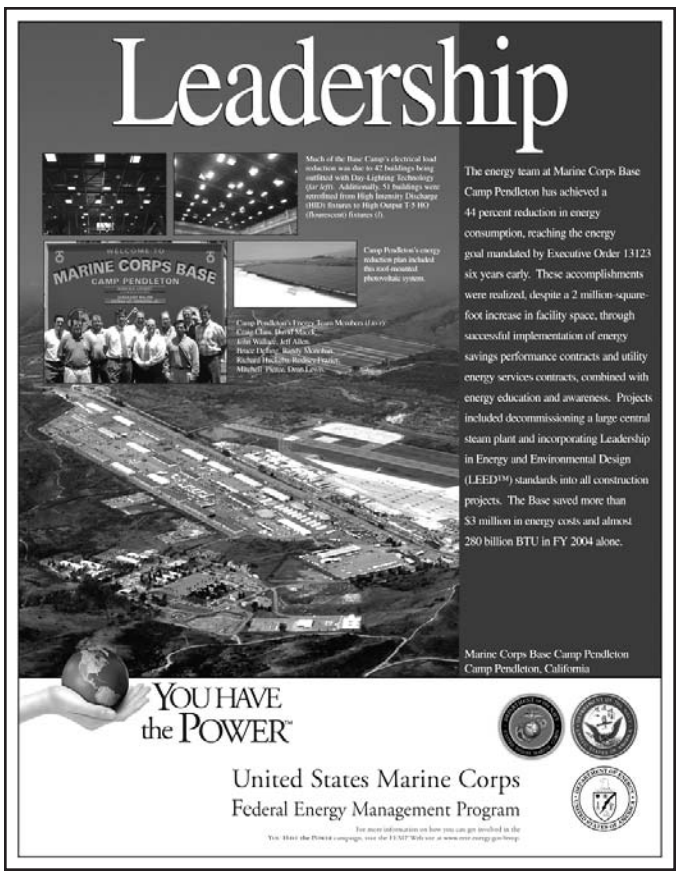
FY 2006 SCHEDULE

January 24-25, 2006	Introduction to ESPC	Seattle, WA
March 28-30, 2006	Advanced ESPC/Financing	Charleston, SC
June 13-14, 2006	Introduction to ESPC	Annapolis, MD







The Federal Energy Management Program's YOU HAVE THE POWER *campaign for 2005 has recognized these buildings and facilities for excellence in energy efficiency: (clockwise, top left) Building 4600, Marshall Space Flight Center, Huntsville, Alabama; Langely Air Force Base, Langely, Virginia; Marine Corps Base Camp Pendleton, Camp Pendleton, California; Escalante Science Center Grand Staircase-Escalante National Monument, Escalante, Utah.*

ENERGY SAVINGS PERFORMANCE CONTRACTING (ESPC)

(TELECOURSE)

Capsule Description This telecourse provides you with basic information on Energy Savings Performance Contracting (ESPC), a process that allows private-sector energy service companies to assume the capital costs of installing energy and water conservation equipment and renewable energy systems at federal sites.

Course Length 2 hours at your satellite downlink site or via online streaming video.

Fee Free; however, participants must have on site downlink satellite access available or Internet access for online streaming video.

Prerequisites Self Study Tutorial, available via the dedicated Web site, http://www.energyworkshops.org/femp, is completed weekly prior to the live satellite broadcast. Participants print their own note-taking versions of the instructors' slides to follow along during the live broadcast presentation.

Course Contents Overview of the process, design and preparation of ESPC solicitations (for agency single-site contracts or agency regional indefinite delivery/indefinite quantity ESPCs); evaluation of proposals; implementation of contracts; case studies; and specific project assistance. As applicable, the workshop is customized to meet the agency's needs in reviewing and examining other alternative financing options such as utility incentive programs and opportunities, and partnerships with local utilities.

Who Should Attend Headquarters, legal, contracting and technical personnel, and program managers.

Benefits to You The telecourse helps enable you to meet Energy Policy Act of 1992 (EPACT) goals and provides tools to help you obtain private sector financing for energy, water and renewable energy projects when agency funds are limited.

Instructors Experts from Oak Ridge National Laboratory

Contact For more information about the telecourse and details on how to participate, visit http://www.energyworkshops.org/femp or contact Heather Schoonmaker, via email, trainingsolutions@tds.net or phone at 865-777-9869.
Register online for the telecourse at http://www.energyworkshops.org/femp which automatically connects to FEMP Central at http://fempcentral.com/workshops/registration.ws
To inquire about a customized workshop for your agency or to attend one, contact your DOE Regional Office (see listing on page 43).

FY 2006 SCHEDULE **February 7, 2006** **Telecourse**

UTILITY ENERGY SERVICES CONTRACTING (UESC) PROJECTS WORKSHOP

(CLASSROOM AND TELECOURSE)

Capsule Description
This workshop provides attendees with an overview of the contracting options and services available from their local utility companies to engineer, finance, and install cost-effective energy and water savings projects. Upon completing the workshop, participants have the contracting and technical knowledge to begin a project at their facility.

Course Length
1-1/2 days (Telecourse: 2 hours at your satellite downlink site or via online streaming video.)

Fee
None. Sponsored by a local utility or agency. (Telecourse participants must have on site downlink satellite access available or Internet access for online streaming video.)

Prerequisites
None. Attendees are strongly encouraged to bring questions about their projects for discussion. (Telecourse: Pre-class study material is made available via Web site.)

Course Contents
Participants learn the typical UESC project process, from the audit phase to commissioning the equipment. Sample documents and a step-by-step guide to completing utility contracts for energy conservation projects are provided. As applicable, specific utility programs and services may be discussed, and working sessions with utility representatives may be included.

Who Should Attend
Project implementation teams including facility/energy managers, engineering staff, legal staff, and procurement and contracting officials. Priority is given to federal personnel; however, state and local government customers are welcomed on a space-available basis.

Benefits to You
Helps your agency meet EPACT goals, conserve energy and get energy conservation projects implemented when agency funds are limited.

Instructors
Karen Thomas & Deb Beattie, National Renewable Energy Laboratory
Julia Kelley, Oak Ridge National Laboratory

Contact
Register online at: http://fempcentral.com/workshops/registration.ws
Telecourse registration: for details on how to participate or to register,
visit http://www.energyworkshops.org which automatically connects to FEMP Central registration.

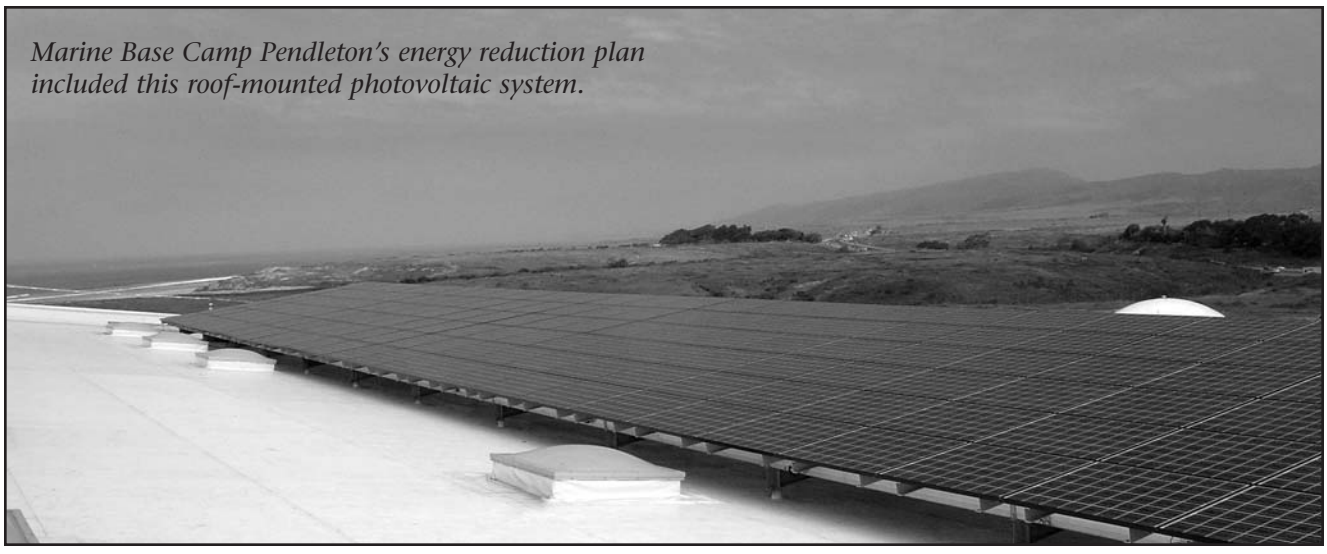
FY 2006 Schedule

February 7, 2006	Telecourse	
February 15-16, 2006	UESC Projects	Los Angeles, CA
May 16-17, 2006	UESC Projects	Detroit, MI

For an updated schedule on classroom courses, please refer to the FEMP Web site:
http://www.eere.energy.gov/femp/services/training_schedule.cfm

EVOLVING ENERGY MARKETS

Capsule Description	This workshop brings together energy experts who explain the fundamentals of how today's utilities operate, and present opportunities for better managing energy use, and procuring electric and gas utility services and renewable power.
Course Length	1 day
Fees	None
Prerequisites	None
Course Contents	Attendees will learn why the utility industry is changing, how utility restructuring is proceeding, and what opportunities this evolving energy market might provide for better energy management practices. Attendees will also hear about GSA's role in energy procurement as well as options for purchasing renewable power.
Who Should Attend	Federal facility and energy managers, federal procurement and contract staff, and state/local government energy managers. Priority will be given to federal personnel.
Benefits to You	Gain a better understanding of how energy markets are evolving. Ask the experts and take advantage of our instructors' experience in evolving energy markets.
Instructors	Mike Warwick, Pacific Northwest National Laboratory; Ken Shutika, General Services Administration; Chandra Shah, National Renewable Energy Laboratory
Contact	David McAndrew, (202) 586-7722. Register online at: http://fempcentral.com/workshops/registration.ws
FY 2006 SCHEDULE	**June 7, 2006** **Washington, DC**



Marine Base Camp Pendleton's energy reduction plan included this roof-mounted photovoltaic system.

ENERGY MANAGEMENT TELECOURSE

Capsule Description

Streaming video and digital satellite deliver instructors' lectures with question/answer opportunities. Problem solving, Web references, quizzes, course evaluations, and certificates of completion are available at the Web site. Information is updated regularly and is designed to assist facility management personnel in achieving Energy Policy Act of 1992 (EPACT) and E.O. 13123 objectives for energy and water savings, and alternative financing.

Course Length

Instructor presentations are 4 hours per day on 3 dates. The online Self Study Tutorial is available via the Internet and requires approximately 20 – 28 hours to complete.

Fee

Free; however, participants must have on site downlink satellite access available or Internet access for online streaming video.

Prerequisites

Maximize learning and complete the Self Study Tutorial, available via the dedicated Web site, http://www.energyworkshops.org/femp. It is completed weekly prior to the live satellite broadcast and participants are expected to print their own note-taking versions of the instructors' slides to follow along during the live broadcast presentation.

Course Contents

Modules include life-cycle costing, energy savings performance contracting, utility energy services contracting, water resource management, and energy conservation opportunities in purchasing, maintenance and design areas.

Who Should Attend

Energy managers responsible for daily operation of facilities (including building managers, demand-side utility managers, government planners, and others) and related contracting and management personnel.

Benefits to You

Completion of these workshops helps agency personnel achieve and maintain energy and cost savings from practical, technologically feasible, and economically sound energy conservation measures.

Instructors

Subject matter experts from the National Renewable Energy Laboratory, the National Institute of Standards and Technology, Lawrence Berkeley National Laboratory, the Oak Ridge National Laboratory and Pacific Northwest National Laboratory. Instructors' credentials and contact information will be available at the Web site.

Contact

For details on how to participate in the telecourse, visit http://www.energyworkshops.org/femp, or contact Heather Schoonmaker, via email, trainingsolutions@tds.net.

Register online for the telecourse at http://www.energyworkshops.org/femp which connects to the FEMP Central Registration at http://fempcentral.com/workshops/registration.ws

FY 2006 SCHEDULE

DATE	MODULE
February 7	Part 1: Utility Energy Services Contracting; Energy Savings Performance Contracting
February 14	Part 2: Energy Efficient Procurement Requirements; Life-Cycle Costing – Basic
February 21	Part 3: Water Resource Management; Operations and Maintenance Management

HANDS-ON DISTRIBUTED ENERGY RESOURCES (DER) TRAINING

Capsule Description	The intent of this course is to familiarize energy managers, decision-makers and technicians with the technologies of distributed energy resources (DER) technologies from cradle to grave. This will be an onsite, hands-on course at Sandia's Distributed Energy Technologies Laboratory (DETL).
Course Length	2 days
Fee	None
Prerequisites	None
Course Contents	Overview of DER, DER technologies and their application, case studies, and hands-on training.
Who Should Attend	Federal Energy Managers and non-federal Facility Managers
Benefits To You	When trainees successfully complete the course, they are able to identify appropriate sites, perform economic analyses, prepare appropriate funding and procurement requests, evaluate competitive bids, manage installations (including site preparation), understand key operational and maintenance issues, and identify end of life and disposal options. Trainees have the opportunity to operate various distributed resources at DETL.
Instructors	Sandia National Laboratory and National Renewable Energy Laboratory.
Contact	For information, contact Connie Brooks, Sandia National Laboratory, 505-844-4383, or email cjbrook@sandia.gov. Register online at: http://fempcentral.com/workshops/registration.ws.
FY 2006 SCHEDULE	**TBD**
	Please refer to the FEMP Web site for schedule updates: http://www.eere.energy.gov/femp/services/training_schedule.cfm

ENERGY EFFICIENT PROCUREMENT REQUIREMENTS

(CLASSROOM AND TELECOURSE)

Capsule Description

The Energy Policy Act of 2005 requires that federal agencies purchase only ENERGY STAR® or FEMP designated products. These products use less energy and reduce life-cycle costs, ultimately saving taxpayers' dollars. In addition, since these products use less energy, they result in fewer greenhouse gas emissions and less air pollution. During this two-hour presentation, you will learn about this and other energy efficient procurement policies, which products this law applies to and how to obtain these products from the federal supply agencies and commercial sources. Specific examples will be covered.

Course Length

Telecourse: 2 hours (1/2 day classroom course may be arranged upon request.)

Fee

There is no cost for the telecourse, however, participants must have on site downlink satellite access available or Internet access for online streaming video.

Prerequisites

Pre-class study materials are available via the Internet 24/7.

Course Contents

Federal Acquisition Requirement (CFR 48 Part 23) and Executive Order 13123 directs federal agencies to purchase ENERGY STAR®-labeled products, or products in the top 25th percentile of energy-efficiency as designated by FEMP (for those products not covered by ENERGY STAR®). Learn about FEMP's Product Energy Efficiency Recommendations, easy-to-use one-sheet summaries that identify the complying efficiency levels for each product type. The Recommendations also provide cost-effectiveness guidance, buyer tips for proper selection and design, and information on how to acquire efficient models through federal supply agencies (GSA and DLA) and other supply sources. FEMP's initiatives and activities on low power standby devices will also be presented.

Who Should Attend

Facility Engineers
Energy Managers
Procurement Officers and Contract Specialists
Architects, Engineers and Specification Writers
Procurement Card Holders

Benefits to You

During this presentation, you will learn:
- how to comply with the Energy Policy Act of 2005, Executive Orders 13123 and 13221, and the Federal Acquisitions requirements concerning energy efficient procurement;
- which products must be energy efficient;
- where to find complying products;
- other resources on energy efficient products; and
- how ENERGY STAR® and FEMP designated products can help agencies meet energy reduction and pollution goals.

Instructor

Donald Mauritz, Lawrence Berkeley National Laboratory

Contact

For details on how to participate in the telecourse, visit http://www.energyworkshops.org/femp, or contact Heather Schoonmaker, via email, trainingsolutions@tds.net or phone at 865-777-9869.

Register online for the telecourse at http://www.energyworkshops.org/femp which connects to the FEMP Central Registration at http://fempcentral.com/workshops/registration.ws

Classroom course scheduled upon request: dlmauritz@lbl.gov

FY 2006 SCHEDULE	Feb 14, 2006	Telecourse

FEMP LIGHTS I – ISSUES – ONLINE COURSE

(WEB COURSE)

Capsule Description The course addresses lighting efficiency for the federal workplace. This course is first in a series of three online, self-paced courses allowing students to complete materials according to their own schedule. A special Web site provides the class forum, delivering course materials and assignments to the desktop of the student. Photographs, diagrams and animated text provide a lively and highly visual medium to learn about all aspects of energy-effective lighting.

Course Length The course is typically completed in 3-4 weeks. However, depending on the start date, students may have up to fifteen weeks to finish course materials. Each course consists of 12 lessons and three quizzes. 18-24 hours total time required.

Fee No course fee, however, the Web-based text, the Advanced Lighting Guidelines, must be downloaded by the student from the New Buildings Institute Web site: http://www.newbuildings.org

Prerequisites No course prerequisites, but access to the Internet and e-mail is necessary. Confidence with computer technology is advised.

Certification The National Council on Qualifications for the Lighting Professions (NCQLP) certifies the FEMP Lights Web Course for 6 Lighting Education Units (LEUs). Students are also encouraged to use this course as a first step towards pursuing Lighting Certification (LC) with NCQLP.
See http://www.ncqlp.org for more information.

Course Contents This first course in the three course series presents an overview of lighting design and visual comfort issues, industry standards for lighting system performance, and calculation tools.

Who Should Attend The course is tailored to the needs of federal personnel who are tasked with managing buildings, or lighting retrofit projects, or who want to learn more about the basics of lighting efficiency. Recent students include engineers, architects, project managers, and program managers.

Instructors Lisa Heschong, Architect, LC; Jim Benya PE, FIES

Contact For more information about the course, and to register, visit: www.femplights.com or call 916-962-7001. The lead instructor, Lisa Heschong, can be reached at teach@h-m-g.com

FY 2006 SCHEDULE **Registration periods:** **Spring 2006 and Fall 2006**

FEMP LIGHTS II – TECHNOLOGY – ONLINE COURSE

(WEB COURSE)

Capsule Description	The course addresses lighting efficiency for the federal workplace. This course is the second of three online, self-paced courses allowing students to complete materials according to their own schedule. The course delves into the variety of lighting technologies available and the cost-effectiveness of lighting systems. A special Web site provides the class forum, delivering course materials and assignments to the desktop of the student. Photographs, diagrams and animated text provide a lively and highly visual medium to learn about all aspects of energy-effective lighting.
Course Length	The course is typically completed in 3-4 weeks. However, depending on the start date, students may have up to fifteen weeks to finish course materials. Each course consists of 12 lessons and three quizzes. 18-24 hours total time required.
Fee	No course fee, however, the Web-based text, the Advanced Lighting Guidelines, must be downloaded by the student from the New Buildings Institute Web site: http://www.newbuildings.org
Prerequisites	Completion of FEMP Lights I. Access to the Internet and e-mail is necessary. Confidence with computer technology is advised.
Certification	The National Council on Qualifications for the Lighting Professions (NCQLP) certifies the FEMP Lights Web Course for 6 Lighting Education Units (LEUs). Students are also encouraged to use this course as a first step towards pursuing Lighting Certification (LC) with NCQLP. See http://www.ncqlp.org for more information.
Course Contents	This second course in the three course series covers lighting technologies, energy consumption and maintenance issues. Technologies covered include all types of lamps, ballasts, luminaires, controls and new emerging technologies. Energy and life cycle cost implications are addressed.
Who Should Attend	The course is tailored to the needs of federal personnel who are tasked with managing buildings, or lighting retrofit projects, or who want to learn more about the basics of lighting efficiency. Recent students include engineers, architects, project managers, and program managers.
Instructors	Lisa Heschong, Architect, LC, and Jim Benya, PE, FIES
Contact	For more information about the course, and to register, visit: www.femplights.com or call 916-962-7001. The lead instructor, Lisa Heschong, can be reached at teach@h-m-g.com
FY 2006 SCHEDULE	**Registration periods: Spring 2006 / Fall 2006**

FEMP LIGHTS III –PROJECTS – ONLINE COURSE

(WEB COURSE)

Capsule Description
The course addresses lighting efficiency for the federal workplace. This course is the third and final of three online, self-paced courses allowing students to complete materials according to their own schedule. The course addresses all issues involved in managing a lighting project. A special Web site provides the class forum, delivering course materials and assignments to the desktop of the student. Photographs, diagrams and animated text provide a lively and highly visual medium to learn about all aspects of energy-effective lighting.

Course Length
The course is typically completed in 3-4 weeks. However, depending on the start date, students may have up to fifteen weeks to finish course materials. Each course consists of 12 lessons and three quizzes. 18-24 hours total time required.

Fee
No course fee, however, the Web-based text, the Advanced Lighting Guidelines, must be downloaded by the student from the New Buildings Institute Web site: http://www.newbuildings.org

Prerequisites
Completion of FEMP Lights II. Access to the Internet and e-mail is necessary. Confidence with computer technology is advised.

Certification
The National Council on Qualifications for the Lighting Professions (NCQLP) certifies the FEMP Lights Web Course for 6 Lighting Education Units (LEUs). Students are also encouraged to use this course as a first step towards pursuing Lighting Certification (LC) with NCQLP.
See http://www.ncqlp.org for more information.

Course Contents
This third and final course in the three course series discusses energy efficient lighting design strategies for offices, industrial and institutional buildings. It also addresses project management issues, such as financing options, how to select lighting retrofit projects, and managing the design, specification, purchasing, installation, commissioning, and evaluation process.

Who Should Attend
The course is tailored to the needs of federal personnel who are tasked with managing buildings, or lighting retrofit projects, or who want to learn more about the basics of lighting efficiency. Recent students include engineers, architects, project managers, and program managers.

Instructors
Lisa Heschong, Architect, LC, and Jim Benya, PE, FIES

Contact
For more information about the course, and to register, visit: http://www.femplights.com or call 916-962-7001. The lead instructor, Lisa Heschong, can be reached at teach@h-m-g.com

FY 2006 SCHEDULE **Registration periods: Spring 2006 / Fall 2006**

FEMP LIGHTS LIGHTING WORKSHOP - LIGHTING FOR HEALTH, HUMAN PERFORMANCE, ENERGY AND THE ENVIRONMENT

(CLASSROOM COURSE)

Capsule Description	The Lighting Workshop is designed for individuals who are involved with issues of lighting design and standards, energy efficiency in buildings, or the human impacts of lighting. The workshop offers a one-day update on recent findings in lighting research and how it pertains to lighting design in the federal workplace.
Course Length	1 day
Fee	No fee
Prerequisites	No course prerequisites, but knowledge of lighting design preferred.
Course Contents	The workshop provides an overview of recent research findings and a discussion of advanced lighting design for the workplace. Topics will include: lighting and circadian effects, lighting and human productivity, aging and visual disabilities, energy efficiency, visual comfort, and appropriate lighting design strategies.
Who Should Attend	The Lighting Workshop is designed for individuals who are involved with issues of lighting design and standards, energy efficiency in buildings, or the human impacts of lighting. The workshop can be tailored for the needs of a specific audience of a hosting agency on special request.
Instructors	Lisa Heschong, Architect, LC, and Nancy Clanton, PE, LC
Contact	To register, visit http://www.femplights.com. For additional information, please contact the FEMP teachers at 916-962-7001, or teach@h-m-g.com.
FY 2006 SCHEDULE	**Spring 2006 / Fall 2006** **TBD**

OPERATIONS AND MAINTENANCE MANAGEMENT

(CLASSROOM AND TELECOURSE)

Capsule Description This course provides an overview of Operations and Maintenance (O&M) practices and management programs. The workshop is designed to provide guidance on developing the roles, responsibilities, and functions of key personnel within an O&M organization. Additionally, the workshop focuses on four major O&M practices (Reactive, Preventive, Predictive, and Reliability Centered) and presents information on O&M technologies and savings ideas. Additionally, the workshop has a hands-on metering module targeting readily available and easy-to-use metering technologies for O&M and general energy efficiency.

Course Length 2 days; (Telecourse: 2 hours at your downlink site)

Fee None; (Telecourse downlink costs and other site-specific costs are covered by local sponsors who may pass on their costs to attendees.)

Prerequisites None (Telecourse: Pre-class study materials are made available via the Internet.)

Course Contents Definition of O&M; benefits of a strong O&M program; costs, risks and liability issues; types of maintenance programs (corrective, preventive, predictive); O&M infrastructure requirements; O&M organization integration; ideas for implementation of O&M; discussion of O&M tools; and a hands-on metering segment.

Who Should Attend Facility management staff; maintenance, engineering operations, training, and administration staff providing O&M services.

Benefits to You Facility and O&M managers learn about proven O&M organizational structures, and are introduced to technologies and tools to optimize energy and dollar savings, reduce operations and fuel costs, lower maintenance and "downtime," and increase safety and reliability.

Instructors Greg Sullivan and Ray Pugh, Pacific Northwest National Laboratory

Contact For more information about the classroom course contact Cecilia Mendoza at 509-372-4368, or register online at http://fempcentral.com/workshops/registration.ws

FY 2006 SCHEDULE	June 27-28	San Diego, CA

DESIGN STRATEGIES FOR LOW-ENERGY, SUSTAINABLE, SECURE BUILDINGS

Capsule Description	Federal buildings provide a unique design challenge with the need for incorporating security, sustainability, and safety requirements. How buildings use energy plays a critical role in integrating these three complex needs. The course teaches the fundamentals of an integrated "whole building" approach to design that considers the structure and systems as a whole and examines how they work best together to save energy and reduce environmental impact. Participants learn about building durability and security in concert with sustainability, "zero-energy" buildings, green power, renewable energy technologies, and distributed generation. The topics apply to new buildings and retrofits for all federal building types. This year's course will cover the impact of the Energy Policy Act of 2005 on federal buildings.
Course Length	Traditional format is 2 days of lecture/discussion with a local site visit. Course can be customized to meet agency needs.
Fee	$99 for federal government employees; Fee for contract architects and engineers TBD. Customized workshops are negotiable.
Prerequisites	None
Course Contents	Topics include daylighting, natural ventilation, passive solar heating, energy-efficient lighting/systems/materials, building integrated photovoltaics, HVAC control strategies, procurement of cost-effective design and consulting services, and project financing options. The curriculum is designed to help participants gain a more thorough understanding of water conservation, low-VOC building materials, indoor environmental quality, and site planning and design issues. Instructors demonstrate some of the latest energy-efficient design software - ENERGY-10 (Version 2.0), review the Internet-based Whole Building Design Guide, and discuss the U.S. Green Building Council's LEED Rating System™, as well as the ENERGY STAR® label for buildings.
Who Should Attend	Federal project managers, facility managers, and architects and engineers with federal agencies and with private sector firms.
Benefits to You	Learn the latest thinking on these topics and how to design your buildings to comply with Executive Orders 13123 and 13101 and the Energy Policy Act of 2005. Buildings designed with an integrated "whole building" approach use significantly less conventional energy, make more effective use of renewable energy (such as PV and solar hot water), incorporate recycled and recyclable building materials, and minimize construction waste. Attendees are eligible for 13 AIA CES Learning Units and AEE Certified Energy Manager CEUs.
Instructors	Joe Bourg, Millennium Energy; Robert Koester, Ball State University; Malcolm Lewis, CTG Energetics; and Richard Paradis, SBIC
Contact	To register, go to: http://www.sbicouncil.org/workshops_home.htm . For information, call Richard Paradis at SBIC, 202-628-7400 x201
FY 2006 SCHEDULE	**Spring 2006** — **Date and Location TBD**

BUILDING DESIGN STRATEGIES COURSE SUPPLEMENT/CONFERENCE

Capsule Description

The Energy Policy Act of 2005 and the recovery from Hurricanes Katrina and Rita provide new challenges for the federal agencies' building design and construction programs. These critical topics will be presented within the Sustainable Buildings Industry Council's Plenary and 2005 Forum in the context of an integrated "whole building" approach to design. Participants learn about building durability and energy efficiency in concert with sustainability and renewable energy technologies as a way to design, construct and manage buildings. The topics apply to new buildings and retrofits for all federal building types. SBIC's Plenary Address and Forum 2005 are being held within SBIC's Ecobuild America Conference and supplements the training provided by FEMP's Design Strategies for Low-Energy, Sustainable, Secure Buildings course.

Course Length

5 hours

Fee

$99 federal government employees through Dec. 1; $125 Dec. 2-Dec. 16.
$165 for non-government attendees through Oct. 14; $190 Oct. 15-Nov. 18;
$215 Nov. 19-Dec. 16. Includes SBIC's Peer-to-Peer Exchange: Sustainability Trends and Challenges for 2006 and SBIC 2005 Sustainability Awards.

Prerequisites

None

Course Contents

Individual presentations will cover:

- relevant items found in the Energy Policy Act of 2005 including its impact on federal buildings, renewable energy technologies and water conservation;
- the status of the rebuilding effort of both federal and private sector buildings after recent natural disasters;
- specific issues that will result when considering the synergies and conflicts between sustainable and durable design; and
- what products, materials and systems are available now to help respond to the Energy Policy Act and to the recovery from these natural disasters.

Who Should Attend

Federal project managers, facility managers, and architects and engineers with federal agencies and with private sector firms.

Benefits to You

Learn how the Energy Policy Act of 2005 and responses to recent disasters will impact the design of your buildings. Buildings designed with an integrated "whole building" approach use significantly less conventional energy, make more effective use of renewable energy (like PV) and incorporate recycled/recyclable building materials. Attendees are eligible for 5 AIA CES Learning Units.

Presenters

Dr. Get Moy, P.E. Director of Installations and Environment, Department of Defense. Dr. Charlie Korman, Chief Technologist, GE's Global Research Center. Greg Franta, FAIA, RMI/ENSAR. Other presenters TBD.

Contact

For instructions on how to register, go to:
http://www.sbicouncil.org/workshops_home.htm
For information, call Richard Paradis at SBIC, 202-628-7400 x201

FY 2006 SCHEDULE December 15, 2005 Washington, DC

IMPLEMENTING RENEWABLE ENERGY PROJECTS

Capsule Description

Addressing the objectives of Executive Order 13123, Greening of the Government, this is an introductory course covering cost-effective, renewable energy technologies for new and retrofit construction, electricity generation and green power procurement.

Course Length

Traditional format is 2 days of lecture/discussion typically combined with a local site visit. Course can be customized to meet agency needs.

Fee

General workshop is free to federal employees. Customized workshops are negotiable.

Prerequisites

None

Course Contents

The two-day course focuses on implementing projects at federal facilities using the following technologies: passive solar technologies for heating, cooling and daylighting; solar water heating, solar preheating of ventilated air; photovoltaic and wind systems for remote or grid–tied power; building-integrated photovoltaic power systems; ground-source heat pumps for heating and cooling; design of low energy buildings; biomass for CHP and heating. The course also explains green power procurement, life-cycle costing, how to finance renewable energy systems, and how to utilize the FRESA renewable screening software in initial renewable resource assessment. The course is tailored by region based on renewable energy resources available regionally. The agency-specific course can focus on any or all of these topics.

Who Should Attend

Facility managers; energy coordinators; electrical, mechanical and HVAC engineers; contract architects and engineers; project procurement officers.

Benefits to You

As a result of participating in the course, attendees are able to identify possible cost-effective renewable applications for their facilities; evaluate the practical benefits and constraints of different technologies; promote cost-effective projects and green power to their management; and, initiate project implementation.

Instructors

FEMP's National Renewable Energy Laboratory team members instruct:
Andy Walker, P.E., Ph.D.;
Sheila Hayter, P.E.;
Alicen Kandt;
Karen Thomas;
Sara Farrar-Nagy;
Chandra Shah or Robi Robichaud.

Contact

To register, go to:
http://fempcentral.com/workshops/registration.ws
Stephanie Blaine, SAGE Systems Technologies, 703-365-0450, sblaine@sagealaska.com
Robi Robichaud, NREL, 303-384-7553, robi_robichaud@nrel.gov

FY 2006 SCHEDULE		
	Spring 2006	TBD
	Summer 2006	TBD

HIGH PERFORMANCE, LOW-ENERGY LABORATORY DESIGN

PRESENTED BY THE DOE AND EPA LABORATORIES FOR THE 21ST CENTURY PROGRAM

Capsule Description	This course provides a comprehensive understanding of the opportunities to optimize energy performance in new and existing laboratories. The course is taught by seasoned laboratory designers, energy managers, and facilities professionals.
Course Length	1 day
Fee	$125
Prerequisites	Participants are expected to have a basic knowledge of laboratory design issues.
Course Contents	Course topics include: Introduction to the Architecture and Engineering of High Performance Labs, Air Supply and Distribution Systems, Laboratory Exhaust Systems and Devices, Controls and Commissioning, Lighting Strategies, Green Design and Emerging Rating Systems, Case Studies, Resources, and Tools.
Who Should Attend	Public and private sector laboratory designers, engineers, owners and operators.
Benefits to You	Participants learn some of the leading practices and concepts being developed and implemented by a growing number of laboratory designers, owners, and operators. This assists individuals responsible for implementing the Energy Policy Act of 2005.
Instructor	Dale Sartor P.E.; Geoffrey Bell, P.E.; Paul Mathew, Ph.D.-Lawrence Berkeley National Laboratory; Otto Van Geet, P.E., Nancy Carlisle-National Renewable Energy Laboratory; William Lintner, P.E., DOE/FEMP; Dan Amon, EPA.
Contact	Labs21 Training Registration http://www.labs21century.gov/training/designcourse/index.htm

FY 2006 SCHEDULE		
	November 16, 2005	**Denver, CO**
	October 16, 2005	**San Antonio, TX***

* Held in conjunction with the Labs21 2006 Annual Conference

Lead by Example

WITH

SMART ENERGY CHOICES

Here is a simple checklist of energy conservation and efficiency measures to use at work:

- ❑ Always use Compact Fluorescent Lights (CFLs) in desk lamps as opposed to incandescent lights
- ❑ Switch off all unnecessary lights
- ❑ Use natural lighting when possible
- ❑ When working late, use task lighting to directly illuminate work areas
- ❑ Unplug equipment that drains energy even when not in use (i.e. cell phone chargers, fans, coffeemakers, desktop printers, radios, etc.)
- ❑ If possible, turn off your office equipment and computer monitors at the end of the work day
- ❑ Use efficient ENERGY STAR® products
- ❑ Close or tilt window blinds to block direct sunlight to reduce cooling needs during warm months
- ❑ Photocopy only what you need
- ❑ Always use the second side of paper, either by printing on both sides or using the blank side as scrap paper
- ❑ Carpool, bike, or use mass transit when commuting to work
- ❑ To save gas: drive the speed limit, accelerate and decelerate slower, and make sure tires are pumped up
- ❑ Use durable coffee mugs instead of disposable cups

DO YOUR PART

DRIVEN TO SAVE

Plan trips carefully. Combine multiple trips and avoid stop-and-go driving

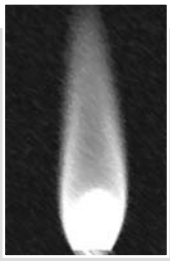
Avoid rush hour driving

Maintain your car. A car that is not tuned up and has under-inflated tires can lose up to one mile per gallon

Drive efficiently. Unnecessary speed ups and slowdowns can hurt fuel economy

Slow down. The faster you drive, the more fuel you use

Carpool, bike, or use mass transit when commuting to work



NATURAL GAS
TIPS FOR FACILITY MANAGERS

BUILDINGS

1. Optimize combustion efficiency
2. Lower thermostat settings (relax dress code to allow for warmer clothing)
3. Lower setback temperatures
4. Optimize morning warm-up and night setback controls
5. Minimize reheat
6. Minimize outside air use for ventilation consistent with code requirements
7. Replace or clean filters
8. Clean heating and cooling coils
9. Shut off non-essential equipment and spaces
10. Insulate and caulk
11. Inspect and adjust/repair/replace dampers
12. Retro-commission
13. Accelerate replacement of inefficient equipment

CENTRAL HEATING PLANTS

1. Optimize combustion efficiency
2. Minimize boiler blowdown
3. Optimize boiler loading
4. Clean combustion chamber and heat transfer surfaces
5. Switch to non-petroleum based fuels

DOMESTIC HOT WATER

1. Lower water temperatures consistent with hygiene requirements
2. Install low flow faucets
3. Install water heater jackets/insulate tanks and piping
4. Turn off circulating systems on nights and weekends

THERMAL DISTRIBUTION SYSTEMS

1. Inspect and repair/replace steam traps
2. Inspect and repair condensate return equipment
3. Locate and repair steam leaks
4. Repair insulation
5. Isolate non-essential distribution piping

LABORATORIES FOR THE 21ST CENTURY (LABS21) ANNUAL CONFERENCE

(JOINTLY SPONSORED BY DOE AND EPA)

Capsule Description	A three-day international event designed to facilitate discussions on various approaches to increase energy efficiency and incorporate renewable energy technologies in construction, design, and operation of both new and existing laboratories.
Course Length	3 days
Fee	$375, plus additional costs for special receptions/events
Prerequisites	None
Course Contents	The Labs21 Annual Conference provides a forum to discuss topics related to high-performance, low-energy laboratory design, onsite power, renewable energy applications, and new technologies. The conference also updates the laboratory community on the activities of the Labs21 program. Building on the success of previous years, this year's conference will again feature a technology fair with state-of-the-art technology applications, and a poster session highlighting innovative design strategies.
Who Should Attend	Public and private sector laboratory designers, engineers, owners and operators. Individuals responsible for implementing the Energy Policy Act of 2005.
Benefits to You	After attending the conference, participants are familiar with cost-effective strategies that can be implemented to assist agencies in complying with the Energy Policy Act of 2005, which requires federal agencies to reduce energy use in laboratory buildings in 2015 by 20% from a FY2003 base case.
Instructor	Conference speakers and participants include laboratory owners, designers, engineers, energy managers, and facilities professionals from both the public and private sector.
Contact	Labs21 Conference Registration online or email labs21@erg.com.
FY 2006 SCHEDULE	**October 17-19, 2006** **San Antonio, TX**

LABS21 ADVANCED COURSE: LABORATORY VENTILATION DESIGN

PRESENTED BY THE DOE AND EPA LABORATORIES FOR THE 21ST CENTURY PROGRAM

Capsule Description	The course, based on Labs21 Best Practice Guides, will focus on reducing energy use through optimizing laboratory ventilation design, specifically by recognizing the individual building's unique aspects for safe operation
Course Length	1 day
Fee	$125
Prerequisites	Participants are expected to have a basic knowledge of laboratory ventilation and design issues, and have taken the Labs21 introductory course.
Course Contents	Course topics include: optimizing laboratory ventilation rate, high-performance laboratory exhaust devices, low-pressure-drop duct design, and advanced effluent dispersion design.
Who Should Attend	Public and private sector laboratory designers, engineers, owners and operators.
Benefits to You	Participants learn some of the leading practices and concepts being developed and implemented by a growing number of laboratory designers, owners, and operators. This assists individuals responsible for implementing the Energy Policy Act of 2005.
Instructor	Geoffrey Bell, Lawrence Berkeley National Laboratory; Thomas C. Smith, Exposure Control Technologies, Inc.; Peter Rumsey, Rumsey Engineers; Ronald L. Petersen, Ph.D., CPP, Inc.
Contact	Labs21 Training Registration http://www.labs21century.gov
FY 2006 SCHEDULE	**October 17, 2005 Portland, OR***

* Held in conjunction with the Labs21 2005 Annual Conference

WATER RESOURCE MANAGEMENT

(CLASSROOM AND TELECOURSE)

Capsule Description How to assess, evaluate, and incorporate water efficiency into federal project-assessment, planning, and implementation programs.

Course Length 2 days (Telecourse: 2 hours at your downlink site)

Fee None; (Telecourse downlink costs and other site-specific costs are covered by local sponsors who may pass on their costs to attendees.)

Prerequisites None (Telecourse: Pre-class study materials are available via the Internet.)

Course Contents Legislation and legal issues concerning water management in the federal sector; impacts of Executive Order 13123; opportunities for water conservation through elimination of waste, reuse/recycling of water resources and use of efficient technologies such as efficient indoor fixtures, efficient landscape design and irrigation, and cooling tower and steam systems; auditing, leak detection and metering; drought management; and integrated resource planning.

Who Should Attend Facility resource managers responsible for water management, water conservation, and for adherence to Executive Order 13123.

Benefits to You The course helps resource professionals understand critical issues and have access to important information so that they can incorporate water efficiency into daily operation in addition to assessments, planning and project retrofit programs at federal facilities.

Instructors Kate McMordie Stoughton and Bill Chvala of Pacific Northwest National Laboratory. Local field experts are brought in as guest speakers to address specific conservation technologies.

Contact For more information about this classroom course contact Cecilia Mendoza at 509-372-4368 or register online at: http://fempcentral.com/workshops/registration.ws

FY 2006 SCHEDULE		
	February 21, 2006	Telecourse
	March 7-8, 2006	San Antonio, TX

LIFE-CYCLE COSTING

(TELECOURSE)

Capsule Description Uses state-of-the-art distance teaching to introduce the elements of life-cycle costing (LCC) for energy and water conservation projects according to 10 CFR 436A and Executive Order 13123.

Course Length 2 hours

Fee None; however, participants must have on site downlink satellite access available or Internet access for online streaming video.

Prerequisites Pre-class study materials are available via the Internet.

Course Contents Overview of life-cycle costing; LCC example.

Who Should Attend Facility managers for energy and water, and facility designers

Benefits to You Ability to understand the basic approach to life-cycle cost analysis, the application of FEMP criteria, and the use of supporting computer software for determining the cost effectiveness of agency-funded and financed energy and water conservation projects.

Instructors Linde Fuller, Economist, National Institute of Standards and Technology

Contact For details on how to participate in the telecourse, visit http://www.energyworkshops.org/femp, or contact Heather Schoonmaker, via email, trainingsolutions@tds.net or phone at 865-777-9869.

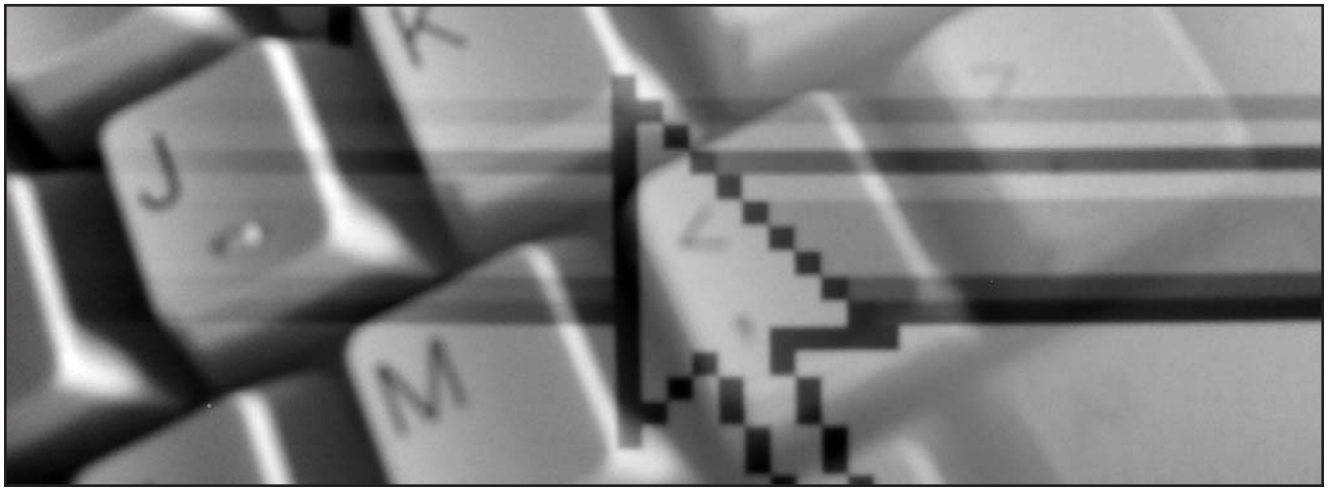
Register online for the telecourse at http://www.energyworkshops.org/femp which connects to the FEMP Central Registration at http://fempcentral.com/workshops/registration.ws

FY 2006 SCHEDULE **February 14, 2006** **Telecourse**

CLASSROOM TRAINING

FEMP will not provide classroom training in life-cycle costing in FY 2006. FEMP-qualified life-cycle costing instructors may be able to provide training to agencies for a fee.

For more information please call the EERE Information center at 1-877-EERE-INF (1-877-337-3463).



INTRODUCTION TO FACILITY ENERGY DECISION SYSTEM (FEDS)

Capsule Description	Learn to use the *FEDS 5.0* software for Windows. *FEDS 5.0* allows you too quickly and easily survey optimum energy improvements for your buildings or entire site.
Course Length	1 day (We recommend that you stay for the Advanced FEDS class described on page 40.)
Fee	None
Prerequisites	A working knowledge of Windows-based personal computers.
Course Contents	Explore *FEDS 5.0* features and capabilities as a method to quickly and objectively identify energy improvements offering maximum cost-effective savings for your buildings or entire site. Discussions and hands-on exercises are combined to give you an understanding of the software, how to input data, modify parameters, and run FEDS to analyze savings opportunities.
Who Should Attend	Federal agency-level and installation-level energy managers who are responsible for adherence to Executive Order 13123 and who need to identify cost-effective, site-specific energy-retrofit projects.
Benefits to You	Learn the basics of *FEDS 5.0* and its capabilities, and identify the information that is required to run the software. Attendees are provided with a workbook and *FEDS 5.0* software.
Instructors	Rosemarie Bartlett, Bob Dahowski and Jim Dirks, Pacific Northwest National Laboratory.
Contact	For more information about this classroom course contact Cecilia Mendoza at 509-372-4368, or register online at: http://fempcentral.com/workshops/registration.ws.
FY 2006 SCHEDULE	**April 11, 2006 Atlanta, GA**

For more information about the FEDS analytical tool, visit http://www.pnl.gov/FEDS

ADVANCED FACILITY ENERGY DECISION SYSTEM (FEDS)

Capsule Description

Survey and analyze optimum energy improvements for your building or entire site, using *FEDS 5.0* software for Windows. At the completion of this course you will have developed a list of potential life-cycle cost effective energy projects. These projects not only comply with Executive Order 13123 directives, but provide enough detail to allow solicitation under a variety of conventional and alternative financing options including: ESPC or Super ESPC financing, or internal/appropriated funding options.

Course Length

2 days

Fee

None

Prerequisites

Introduction to FEDS Workshop or prior familiarity with the FEDS software. Bring sufficient site information to this hands-on course (a list is provided in advance of the course).

Course Contents

Use *FEDS 5.0* to quickly and objectively identify energy improvements for maximum cost-effective savings in accordance with life-cycle-costing methodology; assess and analyze energy efficiency in multiple buildings and at multiple sites without requiring the user to enter detailed engineering parameters; analyze fuel switching opportunities; analyze alternative financing opportunities; and track emissions reductions.

Who Should Attend

Federal agency-level and installation-level energy managers who are responsible for adherence to Executive Order 13123 and who need/want to identify cost-effective, site-specific energy-retrofit projects. Given the nature of this hands-on course, class size is limited, so sign up early.

Benefits to You

Instructors help you: 1) prepare your FEDS case, 2) run FEDS on your case, 3) study FEDS results, and 4) identify potential projects. Participants are provided with the *FEDS 5.0* software and the confidence to use it.

Instructors

Rosemarie Bartlett and Bob Dahowski, Pacific Northwest National Laboratory.

Contact

For more information about this classroom course contact Cecilia Mendoza at 509-372-4368 or her email address at femp.train@pnl.gov.

Register online at: http://fempcentral.com/workshops/registration.ws.

FY 2006 SCHEDULE **April 12-13, 2006** **Atlanta, GA**

For more information about the FEDS analytical tool, visit http://www.pnl.gov/FEDS

INTRODUCTION TO FACILITY ENERGY DECISION SYSTEM (FEDS)

Capsule Description	Learn to use the *FEDS 5.0* software for Windows. *FEDS 5.0* allows you too quickly and easily survey optimum energy improvements for your buildings or entire site.
Course Length	1 day (We recommend that you stay for the Advanced FEDS class described on page 40.)
Fee	None
Prerequisites	A working knowledge of Windows-based personal computers.
Course Contents	Explore *FEDS 5.0* features and capabilities as a method to quickly and objectively identify energy improvements offering maximum cost-effective savings for your buildings or entire site. Discussions and hands-on exercises are combined to give you an understanding of the software, how to input data, modify parameters, and run FEDS to analyze savings opportunities.
Who Should Attend	Federal agency-level and installation-level energy managers who are responsible for adherence to Executive Order 13123 and who need to identify cost-effective, site-specific energy-retrofit projects.
Benefits to You	Learn the basics of *FEDS 5.0* and its capabilities, and identify the information that is required to run the software. Attendees are provided with a workbook and *FEDS 5.0* software.
Instructors	Rosemarie Bartlett, Bob Dahowski and Jim Dirks, Pacific Northwest National Laboratory.
Contact	For more information about this classroom course contact Cecilia Mendoza at 509-372-4368, or register online at: http://fempcentral.com/workshops/registration.ws.
FY 2006 SCHEDULE	**April 11, 2006 Atlanta, GA**

For more information about the FEDS analytical tool, visit http://www.pnl.gov/FEDS

OTHER USEFUL INFORMATION

ACCESS TO USEFUL INFORMATION

FEMP Help Desk	Energy Efficiency and Renewable Energy Information Center Toll-free phone: 877-EERE-INF (877-337-3463) Fax: 360-236-2023
FEMP on the Internet	**http://www.eere.energy.gov/femp**
Training information	http://www.eere.energy.gov/femp/services/training.cfm
FEMP by FAX	**202-586-3000**
FEMP Mailing Address	Office of Federal Energy Management Programs, EE-2L 1000 Independence Ave., SW Washington, DC 20585-0121

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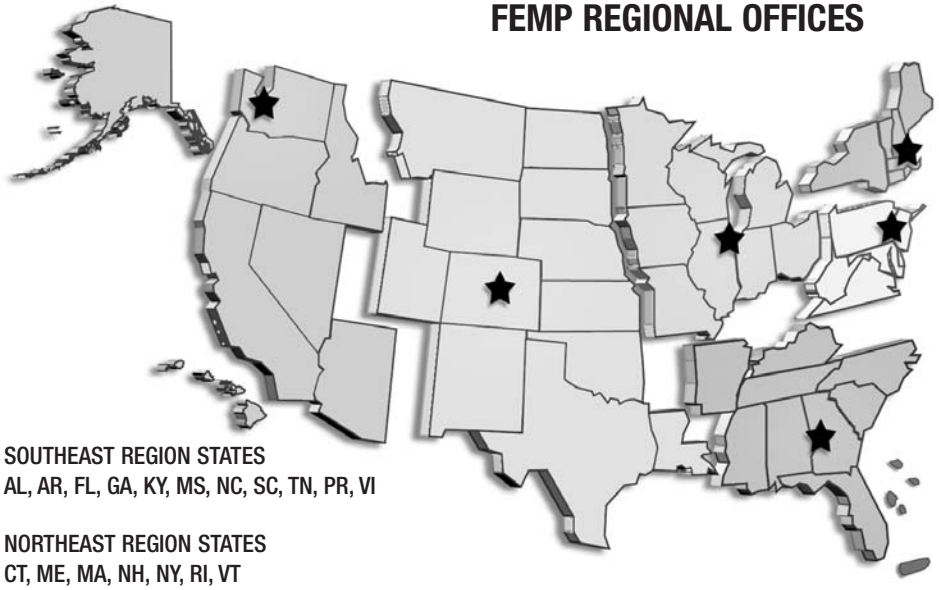

SOUTHEAST REGION STATES
AL, AR, FL, GA, KY, MS, NC, SC, TN, PR, VI

NORTHEAST REGION STATES
CT, ME, MA, NH, NY, RI, VT

MIDWEST REGION STATES
IA, IL, IN, MI, MN, MO, OH, WI

CENTRAL REGION STATES
CO, KS, LA, MT, NE, NM, ND, OK, SD, TX, UT, WY

MID-ATLANTIC REGION STATES
DE, DC, MD, NJ, PA, VA, WV

WESTERN REGION STATES
AK, AZ, CA, HI, ID, NV, OR, WA, AS, GU, PW, MP

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WHAT IS THE STATUTORY BASIS FOR FEMP TRAINING?

EXECUTIVE ORDER 13123 - Greening the Government Through Efficient Energy Management June 3, 1999

The Order, which amends EPACT (appears below) provides that "agencies shall ensure that all appropriate personnel receive training for implementing this order.
(1) DOE, DOD, and GSA shall provide relevant training or training materials for those programs that they make available to all federal agencies relating to the energy management strategies contained in this order." [Sec. 406(d) Training and Education]
(The entire text of E.O. 13123 can be found on the FEMP Web site at: **http://www.eere.energy.gov/femp/about/legislation.cfm)**

Facility management and associated contracting personnel are specifically affected by the following:
The order requires federal agencies to achieve by 2010:

- **35% greater energy efficiency** in buildings relative to 1985 levels; and
- **30% cut in greenhouse gas emissions** from building-related energy use relative to 1990.

The order directs agencies to maximize the use of:

- **Energy Savings Performance Contracts and Utility Contracts**, in which private companies make energy improvements on federal facilities at their own expense and receive a portion of the resulting savings;
- **Life-cycle cost analysis** so agencies see the long-term savings from energy investments;
- **ENERGY STAR® and other energy efficient products,** everything from light bulbs to boilers; and
- **Renewable energy** technologies and sources (solar, wind, geothermal, and biomass).

EPACT Requirements

The Energy Policy Act of 1992 (EPACT) requires that federal agencies achieve the following important goals, with the assistance of the Department of Energy. FEMP training is one valuable means of helping agencies:

- Achieve BTU energy savings goals;
- Significantly increase the use of solar and other renewable technologies;
- Manage the use of water;
- Encourage the alternative financing of energy and water improvements; and
- Develop "Trained Energy Managers."

Trained Energy Manager Requirements

Section 157 of EPACT requires that each agency establish and maintain a program to ensure that "facility energy managers are trained energy managers." On October 28, 1993, the Interagency Management Task Force's Training Working Group issued the following guidance defining the proficiency to be achieved by "Trained Energy Managers" (TEMs). The working group advised agencies to manage their own qualifying programs and FEMP to provide supportive training. Currently, Learning Units are available for the "Design Strategies for Low-Energy, Sustainable, Secure Buildings" workshop.

Trained Energy Manager

In all areas listed below, a TEM must have demonstrated proficiency or completed a course of study in the following:

- Fundamentals of building energy systems;
- Building energy codes and applicable professional standards;
- Energy accounting and analysis;
- Life-cycle cost methodology;
- Instrumentation for energy surveys and audits.

Demonstrated Proficiency

Proficiency is demonstrated through on-the-job performance in current or previous positions. An acceptable substitute for demonstrated proficiency on the job is certification as an energy manager by an appropriate professional organization or public education institute.

Completed Course of Study

The course of study must have been through either a private or public educational institution, a government agency program, or a professional association training program.

AREAS OF REQUIRED EXPERTISE AND RECOMMENDED FEMP COURSES

Note: Course Number Key is at the end of this section.

(1) Fundamentals of Building Energy Systems

Proficiency or training in the design and operation of heating, ventilation and air conditioning systems for buildings, as well as the implications of renewable energy, power and lighting systems and thermal envelope design on building energy systems. Some specific subjects in this field include: mechanical systems utilization; electrical system utilization; utility and process systems; building envelope; cogeneration; energy management systems; and controls. (FEMP Course Numbers 1, 4, 6, 7, 13, and 14)

(2) Building Energy Codes and Applicable Professional Standards

Proficiency or training in the use and applicability of such codes and standards as the American Society of Heating, Refrigeration and Air Conditioning Engineers, the Illuminating Engineering Society, the National Electrical Code, and the Code of Federal Regulations (10 CFR parts 400 through 499) as it relates to federal energy management.
(FEMP Course Numbers 4 and 6)

(3) Energy Accounting and Analysis

Proficiency or training in establishing an energy accounting system which provides for the methodical examination and review of energy sources, uses and costs for the purposes of recording and reporting such information, or to identify and correct existing problems or potential problems. (FEMP Course Numbers 3 and 11. Your agency may have training on this item.)

(4) Life-Cycle Cost Methodologies

Proficiency or training in those methods identified in 10 CFR part 436, or those engineering economics courses taught by educational institutions which include discussions of the time value of money, discount and escalation rates, rate of return, savings-to-investment ratio, and knowledge of the federal requirements in 10 CFR part 436. (FEMP Course Number 2)
E.O. 13123 calls for the use of LCC for purchasing new equipment, new building design and planning projects.

(5) Fuel Supply and Pricing

Proficiency or training in utility rate structures and encompassing: time-of-day, demand and use charges; knowledge of non-utility fuel pricing, including seasonal pricing and storage cost; knowledge of government procurement procedures for both utility and non-utility fuels; and knowledge of relative costs of various alternative fuel types. A level of proficiency and experience within the energy managers' immediate organization is acceptable. (FEMP Course Numbers 1, 11, and 12. Also check training within your agency.)

(6) Instrumentation for Energy Surveys and Audits

Proficiency or training in the uses of a range of hand-held and fixed instruments for the measurement of temperature, humidity, quantity of electric or steam power, fuel flow, combustion products in exhaust gases, lighting levels, and air infiltration. (Please check training within your agency. For "SAVEnergy Action Plan" Audit information please call Karen Thomas at 202-646-5223.)

Renewables and Sustainable Design

E.O. 13123 directs agencies to maximize their use. (FEMP Course Numbers 4 and 7)

Water Conservation

EPACT does not require that TEMs be proficient in water conservation techniques and technology. However, EPACT does require that agencies implement water conservation projects with a pay-back of 10 years or less. Since TEMs are likely to be involved in such projects, they should be encouraged to obtain training and/or proficiency in water conservation. (FEMP Course Number 9)

(continued on next page)

Project Financing/Utility Incentives

EPACT requires that agencies encourage the use of alternative project financing, including utility incentives, in reaching mandated energy savings goals. (FEMP Course Numbers 8, 11, and 12)

Energy Efficient Products

You will learn how to select and procure the most energy efficient products in FEMP's "Buying Energy Efficient Products" course, number 10.

Distributed Generation Courses

Provides project-focused information on DER technologies and approaches. (FEMP Course Number 14)

Note: FEMP's energy analysis software tools will expedite and optimize your EPACT goal achievement. (FEMP Course Numbers 2 and 5)

KEY FOR FEMP COURSES

Course # 1	Energy Management Telecourse
Course # 2	Life-Cycle Costing (Basic and Project-Oriented)
Course # 3	Operations and Maintenance Management
Course # 4	Design Strategies for Low-Energy, Sustainable, Secure Buildings
Course # 5	FEDS (Introduction and Advanced)
Course # 6	FEMP Lights (Web and Advanced)
Course # 7	Implementing Renewable Energy Projects
Course # 8	Super ESPC and Energy Savings Performance Contracting
Course # 9	Water Resource Management
Course # 10	Energy Efficient Procurement Requirements
Course # 11	Utility Energy Services Contracting (UESC)
Course # 12	Evolving Energy Markets
Course # 13	High Performance Low Energy Laboratory Design and Laboratories for the 21st Century
Course # 14	Distributed Generation Courses

NO-COST, LOW-COST CONSERVATION MEASURES

On May 4, 2001 the U.S. Department of Energy issued a "Plan of Action: Energy Conservation at Federal Facilities": Included were the following no-cost, low-cost energy conservation measures:

GENERAL

1. Establish/enhance communications with the local utility company. Understand their needs for load reductions. Work with the local utility to develop the individual facility plan. An example is the Potomac Electric Power Company's (PEPCO's) Curtailable Load Program. During the summer of 1999, participating federal agencies in the Washington, DC, area provided an estimated 8 megawatts of peak load reduction on five occasions when requested by PEPCO, assisting PEPCO, and enhancing grid reliability.

2. Identify load reduction measures appropriate for the facility. Investigate separating loads into: 1) life, health, and safety driven; 2) mission critical; and 3) non-critical. If not separately switchable, investigate modifying systems to allow terminating or reducing non-critical loads.

3. Agencies should immediately update their facility's "Plan of Action for Emergency Electricity Reductions".

4. During alerts, federal facilities should take steps to rapidly reduce their electricity loads, even if these actions would require some sacrifices in employee comfort or convenience. These actions should include: raising indoor temperatures to 78 degrees; shutting down non-essential space cooling up to one hour before the normal close of each workday; turning off non-essential building systems and lighting such as escalators, a portion of all elevators, chilled water (for fountains), and reducing corridor lighting. DOE facility managers are required to take these steps.

5. Establish a system to alert employees of expected high demand days including, but not limited to email, voice mail, or public address announcement to all employees. Communicate early to allow employees to take load reduction measures at home and to dress appropriately.

6. Monitor total facility demand and demands for individual major loads (if separate metering is available). Monitor weather forecasts to predict high demand days and be proactive in communicating with the local utility to assess needs to reduce load.

7. Initiate load reduction measures. Employees can take steps to reduce lighting, personal computers and appliances electricity uses. While energy efficiency should be encouraged on a daily basis, stress the need for increased diligence to alleviate the emergency. Air conditioning operating changes and other system-wide measures should be accomplished by facilities management. Federal facilities that have energy management and control systems are well suited for this task. Facilities should also consider additional measures appropriate for site specific circumstances.

8. Encourage employees to reduce electrical loads in their homes to reduce demand on the utility system. If no one is at home during the workday, unneeded appliances and lights should be turned off, and air conditioning thermostats should be set higher before departing for the day. Also, some utilities offer cost incentives to residential customers who allow the utility to remotely cycle off power to air conditioning and electric water heating systems. Periods without power are limited, so that comfort is not sacrificed. Encourage employees to participate in these programs, to assist the local utility, while reducing their electricity bill.

9. Enhance employee awareness of energy efficiency through training and less formal methods. Provide mandatory and voluntary training opportunities on smart energy practices so that employees can practice energy efficiency during emergency periods and year-round. In addition to training, run public service announcements about energy efficiency on televisions in cafeterias and other public use areas; send periodic email messages about turning off lights and computers and implementing other efficiency practices; post signs or billboards near light switches or communal printers; and consider holding annual energy fairs prior to seasonal emergency periods to provide additional information for employees about how to manage energy use in the work place and in their homes.

LIGHTING MEASURES

1. Turn off fluorescent lights when leaving an area for more than 1 minute. (During non-emergencies, 5 minutes is recommended, to keep from excessively reducing lamp life). Turn off incandescent lights when leaving areas for any period of time.
2. In areas with sufficient daylighting, turn off lights. Adjust blinds, if available, to reduce glare.
3. Use task lighting and turn off general lighting, where it is feasible to maintain sufficient lighting levels for safety and productivity.
4. Turn off display and decorative lighting.

PERSONAL COMPUTERS AND APPLIANCE MEASURES

1. Turn off printers when not in use.
2. Turn off monitors when not in use.
3. Ensure ENERGY STAR® power down features are activated.
4. If computers do not have ENERGY STAR® features available, turn them off when leaving the office for more than 30 minutes.
5. Ensure personal appliances, such as coffee pots and radios, are turned off.

AIR CONDITIONING MEASURES

1. Precool building(s) below normal temperature settings prior to onset of peak demand period. Make sure to tell employees about this practice, so that they will not operate space heaters. During peak demand period, allow space temperatures to drift back up to normal settings (or as much as 5 degrees Fahrenheit above normal settings).
2. Allow casual attire, to make higher temperatures more acceptable.
3. Where systems allow, lower chilled water temperatures several degrees below normal settings prior to peak periods, and allow to drift above normal settings during peak periods.
4. Duty cycle air handling units off. Ensure adequate outside air flow rates to maintain indoor air quality.
5. Ensure that ventilation grilles and fan coil units are not blocked by books, flowers, debris, or other obstructions. Check HVAC systems filters and replace if pressure drop across surface exceeds, or is approaching, recommended maximum. This will improve air conditioning system efficiency and improve comfort.

(continued on next page)

OTHER

1. Operate emergency generators (many agencies have negotiated financial incentives from their local utility for operating generators). Ensure that generators have ample fuel for emergency operation and have been tested routinely. Turn off shore power to ships in dock and operate ship power systems. Make mobile utility system electrical generating equipment available to the local utility.
2. Shut off selected elevators and escalators. Ensure accessibility needs are met.
3. Where feasible, schedule high electrical energy use processes during off peak periods.
4. Encourage employees to not use copiers during peak demand period. Turn off selected copiers. Ensure power saver switch on copiers is enabled.
5. Turn off unnecessary loads such as fountain pumps.

LONG TERM SOLUTIONS

1. Consider purchasing interruptible power for selected loads with high electrical demand, and which will not suffer adverse consequences in the event of the utility turning off power. The cost savings from the lower rate may far outweigh the inconvenience of power being turned off within the interruption limitations agreed to in the utility contract.
2. Consider installing sub-metering to identify high intensity loads to be shed during emergencies.
3. Investigate thermal storage systems or alternative energy sources for air conditioning.
4. Install motion sensors and separate lighting circuits to allow turning off unneeded lights. (Some agencies have installed switching to separate public areas from agency work spaces).
5. Install an energy management and control system to allow shedding and monitoring loads from one central location. If non-critical loads are not separately switchable, modify systems to allow terminating. Local utilities or energy services companies can assist with this effort.
6. Consider adding on-site generation using micro-turbines, fuel cells, combined heat and power, renewable, or other appropriate technology.

A Strong Energy Portfolio for a Strong America

Energy efficiency and clean, renewable energy will mean a stronger economy, a cleaner environment, and greater energy independence for America. Working with a wide array of state, community, industry, and university partners, the U.S. Department of Energy's Office of Energy Efficiency and Renewable Energy invests in a diverse portfolio of energy technologies.

THE OPPORTUNITIES

Biomass Program
Using domestic, plant-derived resources to meet our fuel, power, and chemical needs

Building Technologies Program
Homes, schools, and businesses that use less energy, cost less to operate, and ultimately, generate as much power as they use

Distributed Energy Program
A more reliable energy infrastructure and reduced need for new power plants

Federal Energy Management Program
Leading by example, saving energy and taxpayer dollars in federal facilities

FreedomCAR & Vehicle Technologies Program
Less dependence on foreign oil, and eventual transition to an emissions-free, petroleum-free vehicle

Geothermal Technologies Program
Tapping the Earth's energy to meet our heat and power needs

Hydrogen, Fuel Cells & Infrastructure Technologies Program
Paving the way toward a hydrogen economy and net-zero carbon energy future

Industrial Technologies Program
Boosting the productivity and competitiveness of U.S. industry through improvements in energy and environmental performance

Solar Energy Technology Program
Utilizing the sun's natural energy to generate electricity and provide water and space heating

Weatherization & Intergovernmental Program
Accelerating the use of today's best energy-efficient and renewable technologies in homes, communities, and businesses

Wind & Hydropower Technologies Program
Harnessing America's abundant natural resources for clean power generation

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